

REMARKS/ARGUMENTS

Status of Claims

Claims 1-4, 6-22, and 24-49 are pending in the application.

The Applicants hereby request further examination and reconsideration of the presently claimed application.

Telephone Interview

The Applicants thank the Examiner for participating in the telephone interview on December 12, 2007. The substance of the telephone interview was substantially the same as discussed below.

Claims Rejection – 35 U.S.C. § 102

Claims 1-4, 9-16, 19-22, 27-34, 37, 38, and 44-48 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,404,124 (*Johnson*). Claims 2-4, 9-16, 44, 45, and 47 depend on claim 1, and claims 20-22, 27-34, 37, 38, and 46 depend on claim 19. Thus, claims 1-4, 9-16, 19-22, 27-34, 37, 38, and 44-48 stand or fall on the application of *Johnson* to independent claims 1 and 19. According to MPEP § 2131, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” The Applicants submit that *Johnson* fails to teach each and every element as set forth in claims 1 and 19, and consequently fails to anticipate claims 1-4, 9-16, 19-22, 27-34, 37, 38, and 44-48.

Johnson fails to anticipate claims 1-4, 9-16, 19-22, 27-34, 37, 38, and 44-48 because *Johnson* fails to teach the claimed catalyst with a uniformly round external surface. Claims 1 and 19 read:

1. A catalyst for the selective hydrogenation of acetylene, comprising:
a support selected from the group consisting of alumina, titania, zirconia, zinc aluminate, zinc titanate and mixtures thereof, **wherein the support has a uniformly round external surface**, a surface area in the range of about 3 to

about 10 square meters per gram, a pore volume of about 0.24 to about 0.64 cubic centimeters per gram and has an average pore diameter from about 600 Angstroms to about 5000 Angstroms;

palladium in the range of about 0.01 to 1.0 weight percent of the catalyst, wherein substantially all of the palladium is concentrated in a skin periphery of the catalyst, wherein the skin has a thickness less than about 400 microns; and

silver in the range of about 0.5 to 10.0 times the weight of the palladium, wherein less than 80 weight percent of the silver is present in the skin periphery.

19. A method for the treatment of a gaseous mixture comprising acetylene, which method comprises selectively hydrogenating the acetylene therein by contacting the mixture together with hydrogen with a catalyst;

wherein the catalyst comprises a support selected from the group consisting of alumina, titania, zirconia, zinc aluminate, zinc titanate, and mixtures thereof, **wherein the support has a uniformly round external surface**, a surface area in the range of about 3 to about 10 square meters per gram, a pore volume of about 0.24 to about 0.64 cubic centimeters per gram and has an average pore diameter from about 600 Angstroms to about 5000 Angstroms;

wherein the catalyst comprises palladium in the range of about 0.01 to 1.0 weight percent of the catalyst, wherein substantially all of the palladium is concentrated in a skin periphery of the catalyst, wherein the skin has a thickness less than about 400 microns; and

wherein the catalyst comprises silver in the range of about 0.5 to 10.0 times the weight of the palladium, wherein less than 80 weight percent of the silver is present in the skin periphery.

As shown above, claims 1 and 19 require the catalyst support to have a uniformly round external surface. In contrast, *Johnson* teaches that his catalyst support is cylindrical:

First, a skin-type catalyst was prepared by impregnating alpha alumina **pills (3/16" x 3/16")** with an aqueous solution of palladium chloride acidified with hydrochloric acid to produce a catalyst containing about 0.017 weight percent palladium. *Johnson*, col. 4, lines 24-28.

As shown above, *Johnson* describes his catalyst support as a pill, which is a cylindrical shape.

Moreover, *Johnson* provides the dimensions of his catalyst (3/16" x 3/16"), which are cylindrical

dimensions, not spherical dimensions. **Cylindrical-shaped catalyst supports are not uniformly**

round because they have edges where the cylinder wall meets the two circular faces. As such,

Johnson fails to teach the claim limitation "wherein the support has a uniformly round external

surface,” as recited in claims 1 and 19. Consequently, *Johnson* fails to anticipate claims 1 and 19, and claims 1-4, 9-16, 19-22, 27-34, 37, 38, and 44-48 should be allowed over the cited prior art.

Claims Rejection – 35 U.S.C. § 103

Claims 1-4, 9-16, 19-22, 27-38, and 44-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Johnson*. Claims 6-8, 17, 18, 24-26, 39-43, and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Johnson* in view of U.S. Patent 5,475,173 (*Cheung*). Alternatively, claims 6-8, 17, 18, 24-26, 39-43, and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Johnson* in view of *Cheung* and WIPO Patent Application Publication 01/41922 (*Frenzel*). Claims 2-4, 9-16, 44, 45, and 47 depend on claim 1, claims 20-22, 27-38, 46, and 48 depend on claim 19, and claims 42, 43, and 49 depend on claim 41. Thus, claims 1-4, 6-22, and 24-49 stand or fall on the application of *Johnson* to independent claims 1 and 19, and *Johnson* in combination with *Cheung* or in combination with *Cheung* and *Frenzel* to independent claim 41. As noted by the United States Supreme Court in *Graham v. John Deere Co. of Kansas City*, an obviousness determination begins with a finding that **“the prior art as a whole in one form or another contains all” of the elements of the claimed invention.** See *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 22 (U.S. 1966). The Applicants respectfully submit that *Johnson* alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fail to contain all of the elements of the claimed invention, and therefore does not make obvious the pending claims.

Johnson alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fail to render obvious the pending claims because *Johnson* alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fail to teach the claimed catalyst with a uniformly round external surface. As described above, *Johnson* fails to teach the claimed catalyst with a uniformly round external surface. *Cheung* and *Frenzel* are not cited to teach the uniformly round surface of the claimed

catalyst, and rightfully so as *Cheung* and *Frenzel* do not make up for the shortcomings of *Johnson*. Thus, none of the cited prior art contains a uniformly round external surface. As such, *Johnson* alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fail to contain an element of claims 1, 19, and 41. Consequently, *Johnson* alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fail to render obvious claims 1, 19, and 41, and claims 1-4, 6-22, and 24-49 should be allowed over the cited prior art.

In addition, *Johnson* alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fails to render obvious the pending claims because the uniformly round external surface produces unexpected results. As stated in the MPEP, the Examiner must consider evidence of unexpected results:

Office personnel should consider all rebuttal arguments and evidence presented by applicants. *See, e.g., Soni*, 54 F.3d at 750, 34 USPQ2d at 1687 ... Rebuttal evidence may [] include evidence that the claimed invention yields unexpectedly improved properties or properties not present in the prior art. Rebuttal evidence may consist of a showing that the claimed compound possesses unexpected properties. *In re Dillon*, 919 F.2d 688, 692-3, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990). MPEP § 2145

The unexpected and superior results obtained by use of the uniformly round external surface are described in Example 3 of the specification. In addition, the Applicants submit herewith a declaration by inventor Joseph Bergmeister pursuant to 37 C.F.R. § 1.132. The Rule 132 declaration is further evidence of the unexpected and superior results produced by the uniformly round external surface. Because the uniformly round external surface produces unexpected results, *Johnson* alone or in combination with either *Cheung* or *Cheung* and *Frenzel* fail to render obvious claims 1, 19, and 41, and claims 1-4, 6-22, and 24-49 should be allowed over the prior art.

CONCLUSION

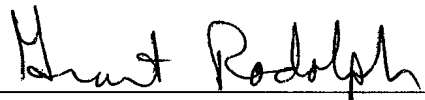
Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections and objections is respectfully requested by Applicants. No new matter is introduced by way of the amendment. It is believed that the bases for the rejections raised in the Office Action dated September 10, 2007 have been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to telephone the undersigned at the telephone number given below.

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Respectfully submitted,
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